

Abstract Submitted  
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**Characterization of the rotational stability of a source mass for the ARIADNE axion experiment<sup>1</sup>** CHLOE LOHMEYER, NANCY AGGARWAL, HUAN ZHANG, ZHIYUAN WANG, ALI ALZERGHANI, NICOLE WOLFF, ANDREW GERACI, Northwestern University, THE ARIADNE COLLABORATION COLLABORATION — The Axion Resonant InterAction Detection Experiment (ARIADNE) collaboration will search for the QCD axion using a Nuclear Magnetic Resonance based technique where the axion acts as a mediator of spin-dependent forces between an unpolarized Tungsten source mass and a sample of polarized helium-3 gas. The experiment relies on limiting ordinary magnetic noise as well as a stable rotary system to modulate the axion-signal from the source mass. Updates on the rotating source mass characterization and magnetic background characterization will be discussed.

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